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Soviet Central Asia: Development of a Backward Area

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Soviet Central Asia: Development of a Backward Area

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IN VIEW of current events in Asia and the increasing interest of the West in assisting the economic development of Asian countries, it is pertinent to examine the experience of the U.S.S.R. in Soviet Central Asia. This report* summarizes the rapid development program carried out in that region in the 1930's, and considers its implications with respect both to the general theory of economic development and to American policy in Asia.[1]

A DESERT LAND

Soviet Central Asia is an over-all term for the four Soviet Socialist Republics of the U.S.S.R.—the Uzbek, Turkmen, Tadzhik and Kirgiz Republics—which lie to the east of the Caspian Sea. These four republics cover a vast region, extending almost 1,500 miles from east to west and totaling 478,000 square miles, or somewhat more than Texas and New Mexico combined.

Most of this area, however, is uninhabitable. From the Caspian eastward for nearly a thousand miles the land is mostly empty desert, spotted infrequently with an oasis, a well, a patch of forage grass. Near Tashkent, the largest city of the region, the emptiness of the desert is finally relieved by mountain foothills which climb to the south and east and soon become lofty snow-covered crags, culminating in the ranges of the Tien Shan and the Pamirs.

Except in the high mountains, there is almost no rainfall during the agricultural season. It is only in certain valleys, and along the few large watercourses, that irrigation permits effective agriculture. Two important rivers, the Amu Daria and the Syr Daria, traverse the region in a north-westerly direction, and it is largely their waters which give life to the region. But the limited water supply, the porosity of the soil, the blazing winds and sun of summer all conspire to make such extensions of the planted area as are possible very expensive.

TSARIST POLICY

The region had been under Tsarist administration from about 1880 on, following its conquest in a series of military operations against the natives led by men like General Skobeleff, who expressed the opinion that "in Asia the duration of the peace is in direct proportion to the slaughter you inflict upon the natives." Once pacified, the area was rapidly developed into a producer of cotton; by the end of the Tsarist reign half of the cotton required by the very large Russian textile industry came from Central Asia. The Tsarist drive for the development of cotton included such measures as a protective tariff against American cotton, relief from the land tax for farmers who planted cotton, introduction of American Upland seed, and construction of two trunk railways into the region. The ancient irrigation works, most of them built in Tamerlane's day, were also slightly extended under the Tsars.

Because cotton farming was left primarily in

*This report is based on a study of Soviet Central Asia carried out by the author in 1949 at Harvard University and supported by the Russian Research Center, to which grateful acknowledgement is made. The author also wishes to note his debt to "Soviet Central Asia, A Selected Bibliography," by Joseph S. Berliner of the Russian Research Center. Mimeographed copies of this bibliography are available free of charge from the Russian Research Center, Harvard University, 38 Quincy Street, Cambridge 38, Mass.

1. This study covers only the decade 1928 through 1937, after which the data are too fragmentary to be useable for the present purpose.

The statistics presented in this article are drawn almost entirely from Soviet sources. There is implicit, therefore, an assumption, which is shared by the majority of Western economists who have worked extensively with Soviet economic statistics, that with few exceptions official Soviet economic statistics are useable data and that, to quote one authority, "the Russian practice is to withhold certain statistical information rather than to falsify it." (Alexander Gerschenkron, "The Soviet Indices of Industrial Production," *The Review of Economic Statistics*, Vol. XXIX, No. 4, November 1947, p. 217.) This assumption may astonish persons whose only acquaintance with Soviet material has been with such highly questionable or at times obviously mendacious statements as those made by Soviet spokesmen with respect to world politics or conditions in the non-Soviet world. For citation of the opinion of four Western economists concerning the worth of Soviet economic statistics, see *ibid.*

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the hands of the natives rather than organized in Russian-owned plantations, most of the proceeds from cotton remained in the region, creating a considerable market for Russian manufactures. Some industry was created, notably extraction of oil and coal, and cotton ginning, which had perforce to be near the cotton fields. But such handicraft industries as had existed were considerably curtailed under the competition of cheaper Russian wares.

Yet by the end of the Tsarist regime the life of the rural hinterland had changed very little from centuries-old patterns. The bulk of the population was still desperately poor. Agricultural implements and methods were largely those of ancient times. Illiteracy and disease had not been reduced significantly. The native barbers were still removing parasitic worms from the limbs of the people as they had in Marco Polo's day.

In 1916, following an attempt by the Tsar's officials to conscript labor battalions in the region, violent rebellion broke out in which thousands were killed, and tens of thousands fled into Afghanistan and Sinkiang. These events made easier, initially, the attempts of the Soviet organizers in the early 1920's to convince the population of their oppression under the Tsars—a conviction subsequently weakened by the bloodiness of Budenny's 1926 expedition against the Central Asian anti-Bolsheviks.

SOVIET DEVELOPMENT PROGRAM

The Soviet development program may be said somewhat arbitrarily to have begun in 1928, although certain important measures had been taken earlier, especially the distribution of land to the poor peasants in 1925.

Soviet policy for the region was determined by a number of objectives. First was the urgent requirement of expanding cotton production. In 1927-8 the U.S.S.R. had been forced to allocate one-sixth of its total foreign expenditure to purchases of cotton, mostly American. Second, a number of considerations appeared to demand that the region be industrialized. There was the preconception that an industrial proletariat furnishes the most reliable Communists. There were preoccupations stemming from long-range policies toward Asia. The region was to be a graphic demonstration of how well Asians could fare under Communist leadership. Finally, the continued search for ways and means to lighten the burden on the Soviet Union's transportation system, and other purely economic factors, caused Soviet administrators to favor some industrialization of Central Asia. It was judged uneconomic, for example, that in 1925-6 half of the manufactured goods shipped into the region consisted of cotton textiles, manufactured in Russian industrial centers from cotton supplied in large part by Central Asian producers.

Before the Soviet development program is considered in detail, however, it must be viewed in the large. One of the main aspects of the program was that all of its parts—economic, political, cultural—were quite highly integrated.

For example, in the opinion of the Soviet leaders, the Moslem hierarchy had to be destroyed. This operation, which was necessary not only to remove a political threat to the Soviet regime but also to free women from the veil and the home and release them for more productive work in the region's economy, was facilitated by early alignment of the Moslem leaders with the White Russian forces. Nomads are difficult to control and therefore first had to be settled. It was necessary to build an educational system: the youth had to be weaned away from Moslem attitudes and also had to be trained to operate a modernized economic apparatus.

The contrast between Tsarist and Soviet policy in the region is not without irony. The Tsars moved into the area initially with none but the standard motives of empires: trade, territory, military position (against the British in India). But as their rule matured, the Tsarist administrators were found protecting the natives from Russian chauvinism, from exploitation by Russian capital, and from the desire of the Orthodox Church to meddle with the Moslem beliefs of the region. Laws were put into effect, for example, limiting the extent to which Russian nationals could buy land from native farmers. Litigation between natives was left to the native courts and Moslem law. The local authority of khans and chieftains was not much impaired, the Russian Governor General finding it easier to control the populace through them than directly. Traces of the lurking

idealism of the Tsarist rulers can be seen in this policy, but the major motive was to maintain settled conditions in the region.

The Soviet organizers, on the other hand, under the leadership of Stalin, a Georgian and the Russian Communist party's expert on nationality policy, showed an overweening interest in native "culture," which was taken to mean folk-dancing, music, art, literature and the native languages. All of these were to be fostered and protected. The region was not Russianized; but it was pitilessly Sovietized, and such elements of culture as religion, family organization, economic arrangements, were fitted on the Procrustean bed of the Soviet state. Those parts of the culture which stood in the way of maximum economic development, or which threatened Soviet control, were destroyed. Certain social and economic groups were marked for "liquidation as a class," a delicate phrase which in application often meant extermination, by starvation if not by violent death.

EFFECTS OF COLLECTIVIZATION

The most hazardous and far-reaching measure, of course, was collectivization. Here, as in all of Russia, it served many purposes. It brought the supply of agricultural produce under state control and weakened, although it did not entirely destroy, the bargaining position of the farmer. It also permitted a shift to large-scale methods of agriculture. While these large-scale methods did not always produce more crops per acre, they usually did produce more crops per man, and permitted a flow of manpower to industry. In Central Asia, especially, collectivization proved crucial because it gave to the state considerable control over the agricultural process; the strategic dates for cotton planting and harvesting could now be controlled, and available irrigation water could be used more effectively.

Initially, because collectivization was handled with incredible stupidity, it proved a disaster. In Central Asia, even more than in any other region of Russia, the collectivization drive resulted in vast and senseless slaughter of the important livestock herds by the peasants, who were being forced rather than led into collectivization. Between the summers of 1928 and 1934, the herds of sheep and goats declined from 18.1 million to 5.7 million animals, and of horses and cattle from 5.1 million to 2.5 million head. On a weighted basis, the region's total livestock herds in 1934 were about 45 per cent of their 1928 numbers. The large Central Asia camel herds—even as late as 1928 an important part of the region's short-haul transport system—were almost exterminated during collectivization. Despite a rather rapid rate of increase thereafter, the 1937 livestock herds were still probably no more than 70 per cent of what they had been before collectivization.

The decline in livestock herds was the single major setback of the Soviet development program in Central Asia. In all other purely economic respects, the progress attained in the decade 1928-37 was impressive.

RISE IN COTTON OUTPUT

In 1928 the harvest of cotton amounted to roughly one million bales, about the same as the average harvest for 1913-15, the best years of the Tsarist era. (The U.S. crop in 1949 was about 15 million bales.) Through all of the methods in their control—collectivization, tractorization, better agro-technics, improvements in seed in some areas, greater use of chemical fertilizer, expansion of sowed area, expansion of the irrigation system and strong financial incentives to the cotton growers—the Soviet authorities managed to increase the annual cotton harvest very rapidly. In 1932 the harvest was 1.5 million bales; in 1935, 2.1 million; and in 1937, no less than 2.9 million bales.[2] This increase, by 2.9 times in a decade, is the central economic fact of the region's development. Thanks largely to Central Asia, the Soviet Union after 1937 was approximately self-sufficient in cotton.

The increase in the cotton crop was the dominating objective of agricultural policy. The best (that is, most adequately irrigated) land was given over to cotton; grain and other crops were demoted to inferior fields. But through expansion of the total planted area, largely made possible by extensions of the irrigation system, it was possible approximately to maintain the output of crops other than cotton. The 1937 grain harvest[3] was about 1.9 million (metric) tons as compared with 2.0 million (metric) tons in 1928. The small decline in grain harvest was approximately offset by an increase in output of other crops—sugar beets, fruits and grapes, mulberry leaves for silk worms, vegetables.

The best method for expressing the total rise in

2. It is not the best practice in agricultural statistics to rely on harvest figures for a single year, as harvests are sensitive to climatic conditions, even in irrigated regions. But in discussing a rapid rise over a short period there is no alternative.

3. The Soviet figure for the 1937 Central Asia grain harvest is 2.4 million (metric) tons. But it is the opinion of most Western experts, notably Naum Jasny, that the grain harvest counting method used in 1937, a biological yield method, exaggerated by approximately 25 per cent as compared with earlier data which were based on barn yields. See Naum Jasny, *The Socialized Agriculture of the U.S.S.R.* (Stanford, Stanford University Press, 1949), Appendix Notes G, H, I and J, especially p. 731.

field crops is to appraise it in total market value of output. On this basis it appears that the aggregate output of field crops increased by no less than 2.1 times over the decade.[4]

INDUSTRIAL DEVELOPMENT

In this decade the industrial development of the region proceeded at a rapid rate. It must be borne in mind, in evaluating the proportionate increase, that at the start the region's industry was very small. Yet by the end of the decade an output of considerable absolute size was achieved in certain commodities, a few of which will be mentioned in some detail.

In 1928, as in the Tsarist period, the production of cotton textiles was negligible. Certain moderate-size facilities for textile manufacture were constructed in the latter years of the decade, but the coming into production of the first half of the Tashkent textile *combinat* (a *combinat* is an industrial enterprise, usually large and integrated vertically, horizontally, or both) increased the region's output to 67,800,000 meters of cloth in 1937. Eventual planned output of this *combinat* was 110,000,000 meters of cloth per year.

A sizeable leather shoe industry was also created in the region, utilizing leather from the local herds: its 1937 output was 3.9 million pairs.

In metal-working, 1928 output was also almost negligible. By 1937 the value of the products is stated to have been 206 million rubles, at 1926-7 prices. The indicated increase from 1928, over 38 times, is probably an exaggeration because of technicalities in the ruble measure of this industry's output. However, the very large size of the industry, for a region of this nature, may be suggested by the fact that the 1926-7 price of a standard 15 HP tractor is believed to have been 5,000 rubles, so that the 1937 output may be assumed to have been equivalent in value to 41,000 such tractors. It is believed that the region's industry did not in fact produce any tractors in the decade, but in the late 1930's a *combinat* producing other types of agricultural machinery came into production in the region, with output of 30 million rubles. Products of this *combinat* are known to have been marketed in nearby Asiatic markets, including Kashgar, Sinkiang.

By harnessing the mountain rivers, it proved possible to create an extensive hydroelectric power industry. In 1928 the power output in the region amounted to 45.7 million KWH; in 1937 it was 390.3 million KWH, or 8.5 times as great. The oil and gas extraction industry, which in Tsarist times had been one of the few relatively large-scale industries of the region, was very slow in recovering to Tsarist output levels. Total output was 152,400 tons in 1913, but in 1928 only 36,400 tons and in 1932 but 99,700 tons. In the next five years tremendous strides were made: 1937 output totaled 845,400 tons, a quantity which probably came near to covering the region's needs. Such a fuel source was of crucial importance, for although coal extraction in the region (primarily in the Kirgiz republic) attained nearly 1,000,000 tons by 1937, the quality of it was very poor. Facilities for refining a part of the region's petroleum output were constructed during the decade; the preliminary figure for 1938 output of the region's refineries was 296,000 (metric) tons, compared with only 17,000 tons in 1929.

In 1928 the region's total output of cement approximated 20,000 tons; in 1937 it was 128,000 tons, 6.4 times as much. In the latter year the output of the industry, concentrated in the Uzbek republic, was sufficient approximately to cover the needs of the entire region.[5]

INDEX OF INDUSTRIAL OUTPUT

The only available indicator of the increase in aggregate production of the region's industry is the Soviet series "gross value of output of all industry, at 1926-7 prices." According to this yardstick, in 1928 the value of the output of the region's industry was about 371.8 million rubles. For 1937 the figure is 2,318 million rubles, or 6.2 times as much. It is the view of Western economists that for the Soviet Union as a whole the "gross value of output" series overstates the actual rise in Russian industry by a considerable, although not enormous, amount.[6] For Central Asia the opposite is the case, and it appears that the output of the region's industry in fact rose by 9.5 or more times, rather than by 6.2 times.[7]

4. See footnote 8.

5. Virtually all data for production of individual industries in the region are from *Sotsialisticheskoe Stroitel'stvo USSR, 1933-8, Statisticheskii Sbornik*—"Socialist Construction, 1933-8, Statistical Handbook" (Moscow-Leningrad, State Planning Commission, 1939), the last relatively detailed Soviet economic statistics published.

6. The inflationary bias in this series for the Union as a whole arises from the fact that commodities not in production in 1926-27 are assigned prices of the year in which they first came into production. Since prices in years later than 1926-7 were higher, these commodities are given an inflated weight, and they are usually commodities the output of which thereafter increases most rapidly. This phenomenon is believed to be limited, for the most part, to commodities of the electrical products and machinery industries (see Gerschenkron, *op. cit.*, p. 222)—industries which were, respectively, non-existent and relatively small in Central Asia. The inflationary bias of the series arising from this source was practically negligible, therefore, for Central Asia.

7. This adjustment may be explained briefly. Over the decade

It can be computed[8] that the total output of the region, of agricultural and industrial commodities combined, weighted according to 1926-7 ruble prices, increased by more than 2.6 times over the decade. Since the region's population increased from about 8 to 10 million persons during the same period, it is apparent that in the 1928-37 decade output per capita was at least doubled, counting both agriculture and industry. It is quite possible that such a rate of increase in agriculture and industry combined has never been attained in any other region of equal size.

FACTORS IN DEVELOPMENT

How was such a tempo of development achieved?

It must be borne in mind that at the inception of the Soviet development program in 1928 the region's economy still had, in most respects, the ossified and nonprogressive characteristics of most underdeveloped areas. Despite measures adopted under the Tsarist cotton drive (introduction of American cotton seed, construction of railways, creation of a modicum of industry) and of the early Soviet political drive (distribution of land to the poor peasants and partial unseating of Moslem-landowner control), the economic processes of the hinterland continued to follow ancient channels. The extreme poverty of the inhabitants was one link in the endless circle of the stationary economy.

How did the Soviet authorities manage to create, in this region, such an explosion of economic development? What does the theory of economic development say? What would have had to be done?

ECONOMIC DEVELOPMENT THEORY OF WEST

The process of economic development has been under discussion among economists since the very early days of disciplined economic thought. But until recently there has been remarkably little first-rate inquiry into its particular form in the underdeveloped economy. In fact, there is as yet no standard work on this question. However, the intense new interest in underdeveloped countries, especially in connection with President Truman's Point Four, has set in motion a fundamental rethinking of the whole problem. This discussion will probably soon provide the outlines of an improved and practical understanding of the subject.

Meanwhile, however, a great deal that is said and written about Point Four continues to be based

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the total "gross value of output, all industry, in 1926-7 prices" increased, as noted, by 6.2 times. Within this sum the cotton ginning industry bulked very large: 59.5 per cent in 1928 and 32 per cent in 1937. The gross value of output of the ginning industry increased by only 3.4 times over the decade, while gross value of output of all other industries taken together increased by 10.7 times. The official Soviet figure of the rise in industrial output—6.2 times—may be viewed, therefore, as a weighted average between 3.4 for ginning and 10.7 for other industries.

It is apparent that the Soviet statistics greatly over-weight ginning, through use of a gross value of product, rather than a value added, measure. In the United States in 1946-8 the cost (value added) of cotton ginning amounted to only 6.2 per cent of the value of ginned cotton; yet in Soviet statistics the total value of ginned cotton is termed "gross value of output" of the ginning industry. In the region's other industries value added, on the average, was at least 50 per cent (and probably considerably more than 50 per cent) of gross value of output.

The adjustment therefore consists of writing down the value of ginning output to 6.2 per cent of stated gross value, and writing down all other industrial outputs together to 50 per cent of stated gross value, with the following result:

VALUE OF INDUSTRIAL OUTPUT, CENTRAL ASIA, IN PRICES OF 1926-7:
(millions of rubles)

	Official data		Adjusted data	
	1928	1937	1928	1937
Ginning	223.5	729.7	13.9	45.2
Other	148.3	1,588.3	74.2	794.2
Total	371.8	2,318.0	88.1	839.4
1937 as multiple of 1928	6.2		9.5	

Gross value of output data are available in two variants: for all industry and for large-scale industry. For the region the data are from the following sources: large-scale variant for 1927-8, 1932 and 1935, from *SSSR Strana Sotsializma*—"The USSR, Country of Socialism" (Moscow, TSUNKHU, Gosplana SSSR i v/o "Soiuzorguchet," 1936), pp. 145-161, except for the Tadzhik output in 1927-8 which is from *Planovoe Khoziaistvo* —"Planned Economy" (1935), No. 2, p. 178; the all-industry variant figures for 1932 and 1937 are from *Planovoe Khoziaistvo* (1939), No. 4, p. 174, and for 1935 are from *SSSR Strana Sotsializma, op. cit.*, p. 171. The 1928 all-industry figure has been created by multiplying large-scale industry output for 1927-8 (October 1, 1927 to October 1, 1928) by 1.15, the ratio between all-industry output and large-scale output in the region in both 1932 and 1935. No attempt was made to extrapolate the 1927-8 figure three months forward to get a calendar 1928 figure.

8. The method is to estimate the value of output of the major economic sectors of the region in 1926-7 prices. The estimates are as follows, in millions of rubles:

	1928	1937
Output of livestock products	206.0	137.3
Output of cotton	280.3	774.3
Output of grain	122.0	115.9
Output of other field crops	24.1	25.4
Output of industry	88.1	839.4
	720.5	1,892.3

Procedures: For livestock products, the Central Asia herds were multiplied by a coefficient derived from data on planned all-Union livestock herds and planned output of livestock products, for 1926-7, in 1926-7 rubles (*Kontrol'nye Tsifry Narodnogo Khoziaistva na 1926-7 god*—"Control Figures for the National Economy for 1926-7" (Moscow, State Planning Commission USSR, 1926), pp. 338-9.

For cotton and grain, actual output data (adjusted data in the case of grain) were multiplied by 1926-7 prices.

For other field crops, acreage planted to such crops was multiplied by value of grain output per acre.

For industry, official output data adjusted by procedure explained in footnote No. 6 were used.

The livestock data are biased downward. Data for 1937 are winter-count, for 1928 summer-count; the former measure is always smaller, as farmers kill stock to conserve fodder.

on an implicit doctrine which may be summarized (in somewhat oversimplified form) approximately as follows: Regions in which arable land and other natural resources are scarce in relation to population and in which the stock of capital is small are trapped in an impasse. For in such a region the output per man will inevitably be small. The supply of land and resources being nonexpansible, the only production factor which can be increased, so as to raise output, is capital.[9] But capital can only be created from a surplus, i.e., from the margin between the region's total output (less expenditures for maintenance of capital) and the amount of this output used for consumer purposes. In a poor region total output per capita is so small that even at subsistence or semistarvation levels of consumption there may be no surplus, and it would be impossible to extract one for accumulation purposes without driving the population over the brink of starvation.[10] Hence such a region or country can be extricated from this impasse only by net foreign assistance. Moreover, the net assistance required will be very large, especially if it is desired, simultaneously with development of higher production, also to improve living standards. Initially net foreign assistance will have to be as much as, or more than, the total amount of capital required to raise productivity to the level desired.

Does this Western doctrine offer an explanation of the process of development in Central Asia?

Unfortunately, the data reflecting *how* the Central Asia development was managed do not have the firm character of the data measuring the extent and speed of the development. But such data as are available indicate that the capital used in the region's development was not to any significant extent obtained by squeezing living standards in the region.

LIVING STANDARDS

Thus it appears virtually certain that around 1925-30 the commodity intake per capita in the region was considerably, perhaps one quarter, below the all-Russian average.[11] And this impression is buttressed by accounts of travelers in the region in the late Tsarist and early Soviet days. But by the end of the period in question, that is around 1935-37, it appears that industrial workers in the region were faring approximately as well as industrial workers in the rest of Russia,[12] while the *kolkhozniks* (collective farmers) there appear to have had a commodity intake actually greatly in excess of the all-Union average for *kolkhozniks*.[13]

9. Expanding the labor force is unlikely to be a way out for such a region if the expansion stems from a rise in population, because then there is an increase in mouths to feed of the same proportion, and adding labor to a fixed quantity of land and capital is likely to produce a less-than-proportional increase in total product. But if the labor force can be expanded without increasing the number of mouths to feed, for example by bringing women into economic life or utilizing the winter idleness of farmers, it may in this way be possible to increase output per head, i.e., the living standard.

10. This observation is often made, for example, in connection with the development plans of the Chinese Communists.

11. Frank Lorimer, *The Population of the Soviet Union* (Geneva, League of Nations, 1940), p. 77. On the basis of a League of Nations study of agricultural production and prices in the 1925-28 period, counting all agricultural outputs except fodder, Lorimer computes the farm output of different regions, per capita of farm population, in rubles of that time, and concludes that the Central Asia agricultural output, per capita of the region's rural population, amounted only to about 80 per cent of the all-Russia average.

These computations measure gross output rather than commodity intake. But on rather general grounds—the high cost of irrigation in particular—it seems virtually certain that the net commodity intake of the region's farmers in the 1925-8 period was no more favorable, in comparison with all-Russia averages, than gross output.

As for industrial wages, in Uzbekistan (the most advanced of the four republics, industrially) they averaged 78.71 rubles per month in 1930, whereas for the Union as a whole they averaged 82.59 rubles, or 5 per cent more. *Trud v SSSR, 1935*—"Labor in the USSR, 1935" (Moscow-Leningrad, State Planning Commission), pp. 169-70. But in 1930 prices in Uzbekistan, in city markets, were considerably higher than the averages for the Union as a whole. Wheat bread was 19 per cent higher, buckwheat 38 per cent, potatoes 28 per cent, rye bread 33 per cent (1929), salt 47 per cent, eggs 38 per cent, kerosene 20 per cent, and so on. *Narodnoe Khoziaistvo SSSR, Statisticheskii Spravochnik, 1932*—"The USSR National Economy, Statistical Handbook, 1932" (Moscow-Leningrad, Central Administration of National Economic Accounting of the USSR, 1932), pp. 348-50.

12. In January 1935, rationing was abolished in the U.S.S.R., and new prices were established for crucial consumer goods, notably bread, according to a system of price zones. The zone with the lowest prices was Central Asia. In that year the average wages of workers in large-scale industry were 163, 204, 178 and 167 rubles per month in the Uzbek, Turkmen, Tadzhik and Kirgiz republics respectively (*Trud v SSSR, 1936*, p. 82), and 185 rubles per month average in the Union as a whole. In 1937 it appears that industrial wages in the region approximated the all-Union average of 258 rubles per month, or 3,093 rubles per year. *Bol'shaia Sovetskaia Entsiklopediia*—"Great Soviet Encyclopedia"—the U.S.S.R. Volume (Moscow, 1938), p. 1117. In 1947, when rationing was again abolished, the price zone system was again installed, the prices per kg. of black bread and sugar in the Central Asia zone being 2.8 and 13.5 rubles respectively, compared with prices in the other zones of 3-3.2 and 15-16.5 rubles. Food prices were apparently held low in the region to encourage farmers to concentrate on cotton.

13. In 1937 the Turkmen, Uzbek and Tadzhik collective farms earned average gross incomes which, when divided by the number of *kolkhoznik* households they comprised, came to 2,369, 3,069 and 1,909 rubles respectively, while a comparable all-Union average came only to 786 rubles. *Kolkhozy vo Vtoroi Stalinskoi Piatiletke*—"The Collective Farms in the Second Stalinist Five Year Plan" (Moscow, Gosplan, Central Office of National-Economic Accounting, 1939), pp. 117-8. Moreover, in 1937 the average Soviet collective farm was able, after paying for operating expenses, compulsory payments to the state, payments into special funds, and so on, to distribute only 47.7 per cent of its gross income to the farm members, while the Central Asia farms, with their much larger gross incomes, distributed 61.2, 66.2 and 65.1 per cent respectively in the three republics. *Ibid.*, pp. 108-9. Multiplying the first by the second set of numbers gives the average money receipts per *kolkhoznik* household from the collective farms: 375 rubles all-Union aver-

Since during this same period, late 1920's to late 1930's, the commodity intake averages for all of Russia were probably standing about still—the decline in some commodities (especially animal products) being approximately offset by increases in other items—and this region was gaining on the all-Russia averages, it appears probable that the living standards of the region were not being forced down but, on the contrary, were slowly improving.

In terms of certain ascertainable amenities there is no question about the region's progress. Under the Tsars (according to Tsarist sources) there were about 200 doctors in the region. In 1928 there were 1,565 and in 1937, 3,536. In 1928 there were 23,100 children at school in Grades 5 through 10; in 1937 there were 216,300 or 9.4 times as many children in these grades. Literacy averaged about 10 per cent in 1926 among persons of age nine or more; by 1939 it had risen to nearly 70 per cent. (The 1926 census counted only those "able to read," while the 1939 census counted as literates those "able to read or write.") There is other evidence that the non-commodity portion of living standards improved markedly in the decade.

On balance, it seems unlikely that any major part of the capital used to develop Central Asia was mobilized by forcing living standards down.

NET CAPITAL AID?

Is the explanation, then, that the Soviet Union poured into the region a vast flow of net capital assistance? On page 227 in this issue is published "Net Assistance To Soviet Central Asia, 1928-37." On the basis of seriously inadequate data, that study estimates the imports and exports of the region during the decade and concludes that the region's development was probably accomplished with a rather moderate amount of net capital assistance, and possibly with zero net assistance, from the rest of Russia.

It may be noted that the major reason for the possibility of moderate or zero net assistance is the great increase in, and great value of, the region's cotton crop; during the decade the region exported to the rest of Russia approximately 17.35 million bales of cotton, which at the average United States cotton prices of 1946-48 (29.5 cents per pound) would have had an aggregate value of $2.4 billion. The assumption, therefore, is that such an amount of cotton, plus some other exports of the region, contributed very heavily to paying for all of the imports the region required to carry out its development: capital equipment, industrial and agricultural supplies, manufactured consumer goods, and grain.

It would be wholly incorrect to read the Central Asia case as being explained away by the large value of the cotton crop. Exploiting the cotton potential of the region was not similar to striking gold or finding rich oil deposits. On the contrary, expansion of cotton harvests was accomplished only with huge outlays for irrigation, assignment of a great deal of labor to cotton culture, and the creation of industrial facilities—gins, seed-presses, fertilizer and agricultural machinery plants—required to increase the cotton crop. In Uzbekistan during the period approximately 60 per cent of total investment was allocated to agriculture, mostly to cotton, while only 40 per cent went to industry, and in the other republics the agricultural portion of investment was probably even larger. In short, the increase in cotton output was a very expensive operation in every sense.

The only really unique and special condition enhancing this region's ability to pay its own way was the existence of a guaranteed and unlimited market for Central Asian cotton. But in the realistic context of today's struggle for the underdeveloped countries, this condition is not so special after all. It is virtually certain, for example, that trade agreements will speedily be concluded between Communist China and other Cominform countries, providing just such guaranteed markets. And it is not politically or economically unimaginable that the Western world, for its part, will also extend offers of guaranteed markets to certain underdeveloped countries.

That Soviet Central Asia was part of a larger political unit which contained some relatively advanced areas was another factor facilitating the development program, most especially by making simpler the provision of technically trained personnel. Even by 1937 such personnel, especially

age, 1,447 rubles in the Turkmen republic, 2,032 rubles in the Uzbek republic, and 1,243 rubles in the Tadzhik republic.

A part of this startling differential is due, of course, to the cash crop nature of Central Asian agriculture, especially in the Uzbek cotton belt, and to the fact that in most of Russia a considerable proportion of the *kolkhoznik's* real income consisted of distributions in kind, primarily of grain and potatoes, while in Central Asia such distributions were very small. But it is indicated (*Planovoe Khoziaistvo*, 1938, No. 9, p. 104) that the Uzbek *kolkhoznik*, at least, spent only 39.5 per cent of his total money income on agricultural produce of all kinds, an amount which falls far short of absorbing the excess income of the Uzbek. Further, it is stated that the average *kolkhoznik* household of 28 (unnamed) regions spent only 42 per cent as much on manufactured goods, in 1937, as did the average Uzbek *kolkhoznik* household (*loc. cit.*).

The present writer is of the opinion that the apparent sharp contrast between the income of Central Asian *kolkhozniki* and of his all-Union average brother reflects the very low living standard of the average Soviet *kolkhoznik* rather than inflation of the data concerning Central Asia.

the administrative categories, included very many Russians. The Russians sent in were usually paid bonuses (as compared with Moscow or Leningrad salaries) to compensate for the unpleasant climate and living conditions in the region. There is evidence of a Moscow policy to load the administrative machinery with Russians, who were to act as watchdogs against local nationalistic deviations, a policy which was deeply resented by the natives. But it is apparent also that a really earnest effort was being made to train natives as doctors, veterinarians, agronomists, skilled factory workers and even as administrators. Soviet publications point with great pride to the rising proportion of natives (and especially of native women) employed in these skilled categories.

On the basis of rather inadequate data it has been concluded tentatively that the very rapid development of Central Asia was accomplished without cutting into the region's living standards and with only moderate net assistance. But the data are sufficiently poor so that this conclusion must be thrown out if no reasonable and acceptable explanation of it can be found. We are led back to re-examination of the Western theory of development outlined briefly above and which is implicit in much that is said and written in the West about the development of backward countries.

WESTERN ECONOMIC ASSUMPTIONS

It should be emphasized that that doctrine does not stem from empirical investigation of the underdeveloped economy. On the contrary, it stems directly from the whole structure of Western economic theory[14] and depends on the assumptions and the "laws" of that theory. Western economic theory as a whole, of course, was built up by a long process of investigating and theorizing about the advancing and progressive economies of the West and did not attempt to explain or make room for phenomena not found in these economies. Western theory did not, for example, make room for the possibility of prolonged and serious unemployment until Lord Keynes revamped the theory to fit the new facts of the depression years. It may be said therefore that the older Western understanding of the underdeveloped economy arose, through the body of Western economic theory, from experience with highly developed economies.

Certain key assumptions of the older theory which are not applicable in the underdeveloped economy context must now be examined to determine the general lines along which the new understanding of backward country development will most probably move.

The body of Western economic thought has at its core an assumption that throughout any economy the production processes in use tend to be the most efficient, or very close to the most efficient, available at the current stage of practical science. If a skilled investigator searched the agriculture and industry of the United States for examples of inefficient processes which could feasibly be replaced by better processes producing more output with the same input of production factors, he would find comparatively few such examples, except occasionally on small farms. For the American entrepreneur is engaged full-time in this very same search, and already would have found most of such examples of technological slack and profited by their removal. The absence of such slack is probably the single most important source of the American economy's magnificent productivity.

But an underdeveloped country, and most of all an underdeveloped country which has been frozen in the same economic pattern for generations and even centuries, is rampant with technological slack.[15] An energetic development program can rely on a vast accumulation of applicable technological improvements, ready at hand. The introduction of these improvements will have the effect of increasing productivity. Although in many cases the technological improvement (for example, the introduction of better seeds and animal strains) may not involve any addition of capital, productivity will act as though there had been an injection of capital. A considerable proportion of the rise in productivity of Central Asia must certainly be ascribed to this process. The technical aid aspects of the Point Four program are, of course, based on awareness of the great potential effect of removing technological slack.

A second assumption of Western economic theory is that unless people are genuinely unemployed, e.g. idle and with no economic task to perform, they are employed in the job which from the point of view of the entire economy's output is the optimum job, so that in the short run no

14. *Cf.* the ill-tempered remark of Lord Keynes: "Practical men who believe themselves to be quite exempt from any intellectual influences are usually the slaves of some defunct economist."

15. It is true that technological developments worked out in the more advanced countries in the last 50 years or so have been predominantly of sorts applicable to countries with ample capital. But there have also been developments which do not require great capital, especially in agronomics. Further, the reservoir of technology which can be drawn upon for underdeveloped countries is not limited to technical advances of the last 50 years or so but may even include technological developments antedating the Industrial Revolution, since many backward countries ceased advancing before that time.

reassignment of workers to other jobs can increase the nation's total output of goods and services.[16] On this assumption is based the conclusion that in a fully employed economy it is impossible, in the short run, significantly to increase the output of capital goods without cutting down the output of consumer goods.

But in an underdeveloped country it may be perfectly feasible to expand the output of capital instruments without any significant encroachment on the output of consumer goods, i.e. on living standards. For in a country or region in which average productivity is very low (any really poor country) the incremental product, or as economists call it the "marginal product," of a considerable part of the labor force may be negligible, or even zero, or even conceivably negative.

The Chinese Communists, for example, may be expected to withdraw millions of able-bodied farmers from the land and organize them in the construction of capital instruments, such as roads, irrigation projects, clearing and drainage projects, harbor facilities, dikes, terraces, airfields and other capital items which can be created with local materials and vast expenditures of labor. And it may well be true that the removal of even 10 or 20 million farmers from the land will cause no decline in food output because of the low marginal product of Chinese farmers. It may prove possible, by the simultaneous introduction of improved farming methods, to maintain food output while drafting farmers into capital projects.[17]

To be sure, there is an end to the list of needed capital instruments which can be created in this way. It is hardly feasible to build complex machinery—metal machinery, especially—with local materials and hand labor alone. Yet we of the West must not overemphasize the irreplaceability of machines. Innumerable processes which would be fantastically expensive in the United States if carried out by hand labor alone may be performed most economically in capital-starved countries with no help at all from modern machines. The bulk of Chinese freight is, and probably will for some time continue to be, carried or pushed by human beings. Westerners tend to ask: "What is the use of building roads in China if there is no way of making trucks available?" The answer is that a man with a barrow, a cart or even a carrying pole can move much more freight per day on a smooth, graded road than on a rocky or muddy path.

Of course it is not to be expected that China or any other now underdeveloped country will be content to develop without the machine. And since few underdeveloped countries can produce their own machinery, initially it will be supplied by the industrial countries.[18] But if the importation of foreign machinery is preceded or accompanied by increases in productivity accomplished from internal sources, the net assistance required from outside will prove very much smaller, since it will be possible to create exportable surpluses of some commodities to use in partial payment for imported machinery and because more internal requirements, both for capital goods and for consumer goods, will be met from internal sources.

QUESTIONS FOR THE FUTURE

In the development of underdeveloped countries the West suffers certain ironic handicaps stemming from its good fortune and success in having left behind many years ago the conditions of economic backwardness which have been the milieu and main concern of the Soviet experts since 1917. As a counterbalance the West has several demonstrated advantages, notably its economic strength and technical lead. It may have other advantages too. In the broad field of economic reorganization there is no warrant, until a real test has been made, for accepting the doctrine of despair, that only totalitarians can achieve rapid and thoroughgoing results. It is to be expected, however, that one of the major problems for the West will be the acclimation of its experts, particularly its economists, to the special conditions of underdeveloped countries.[19]

But meanwhile, in the immediate practical work

16. A similar assumption is made about the allocation of production factors other than labor. But since these other factors do not have so rigid a reservation price as labor, the assumption about their optimum allocation does not utilize the concept of full employment.

17. In 1939, 160,000 Central Asian collective farmers were organized to dig the "Great Fergana Canal named Stalin" to water the fertile Fergana Valley and surrounding areas. In 45 days, according to the Soviet account (*Planovoe Khoziastvo*, 1940, No. 2), 18 million cubic meters of earth had been moved, creating a large canal 271 kilometers in length.

18. Western Europe is already coming generally into a surplus position in machinery production, and for lack of markets has begun to cut back the output of certain types of machinery and metals. It is now beginning to be realized that an adequate market for machinery, created by grants of dollars to underdeveloped countries, would, in so far as this market was not used up by American sellers, help to relieve the dollar problem in Europe and simultaneously would supply the underdeveloped countries with crucial machinery imports, so that one dollar would be buying two dollars' worth of desirable results.

19. Since more than half of the world's population lives in countries which may be termed underdeveloped, the conditions of the underdeveloped country should perhaps be called "general" and the conditions of the advanced country "special." But it is to be anticipated that the new concern of economists with the underdeveloped country will in time bring about a recasting and generalizing of economic theory in such form that it can cope equally well with the advanced or the underdeveloped economy.

of drafting and programming Point Four, a great deal of specific and quantitative investigation will have to be brought to fruition. Reasonably final answers to many questions will be needed. For example, what is the actual degree of technological slack in various industries of this or that country, and what will its removal add to productivity? How much can be expected from the introduction of better plant and animal strains? What is the proportion of workers with negligible marginal productivity in the various countries, and what feasible projects can be carried out with the surplus of their labor? Finally, what broad policies and programs of the noncoercive sort with which the West can ally itself are available to stir the imagination and release the energies of the inhabitants of the underdeveloped countries for their own betterment, and how can such policies be kept free from the stigma of imperialism? Enthusiasm in Congress for Point Four will probably be contingent, in part, on the firmness of the answers provided to these questions.

However, one conclusion may be considered already established, on the basis of recent thinking about the problem. Quite rapid progress in development can be achieved at a net cost in assistance considerably less than the formidable amounts suggested by older ideas on the subject. In fact, there are many reasons to believe that the rate of return—results as against net cost—will tend as a general rule to be greater the more underdeveloped is the region to be assisted. The more slack exists in the technology and economic organization of a region or country, the greater the windfall to be obtained by a development program which removes this slack. Central Asia was able to make more rapid proportionate progress than the Soviet Union as a whole in the 1928-37 decade primarily because Central Asia was initially more backward than the rest of Russia.

The policy implications of the newer line of thinking suggested here are not, of course, to scale down the planned requests for Point Four appropriations. On the contrary, under any reasonable logic of economy of force, the high ratio of result to cost which is now believed to exist points to the possibility of frontal attack on the whole problem of underdevelopment, with appropriations larger than those heretofore discussed, and with expectations of attaining very considerable results in a decade or two.

Net Assistance to Soviet Central Asia, 1928-37

By Maria and Warren Wilhelm

This estimation of net assistance furnished to Soviet Central Asia by the rest of the U.S.S.R. in the 1928-37 decade is a measure, essentially, of the amount of commodities which were shipped into the region but were not paid for by commodity exports from the region. Central Asia's imports and exports are valued in 1926-7 prices, and the excess of imports is called net assistance or net capital aid. As a measure of total net assistance received by the region, this estimation ignores invisible trade (in non-commodity items) and the region's trade with non-Russian areas. The total of these omissions is believed to be very small.

The major export item was cotton, of which 17.35 million bales was the probable amount. The 1926-7 price of cotton per bale approximated 270 rubles; the value of cotton was therefore about 4.6 billion rubles. Other exports—silk, fresh and preserved fruits, karakul and other hides and furs, meat, non-tonnage minerals—probably increased total value of exports to the range of 5 to 6 billion rubles.

CHARACTER OF IMPORTS

Imports are considered in four categories: investment goods, current supplies for agriculture and industry, wheat and manufactured consumer goods.

Investment goods import (e.g. the import of all items for which expenditures were made under investment programs) are estimated from stated investment during the decade, about 6.5 billion rubles, computed from actual outlays, that is, in the rubles of the years in which the expenditures were made. Since wages continued to rise after 1926-7 (all-Union average industrial wages were 708 rubles annually in 1928; 1,427 rubles in 1932; and 3,093 rubles in 1937), and since the tempo of investment generally rose in the region during the 1928-37 decade, it is difficult to believe that the average ruble in the investment figure has more than half the value of a 1926-7 ruble.

Moreover, by no means all of the money spent in investment programs went for *imported* investment goods. More than 60 per cent of total investment was in agriculture, and especially irrigation works, in which the largest outlays were for local labor and also for Uzbek cement. Investment outlays for education and public health also included large expenditures for local construction labor, local materials and cement, as well as expenditures for imported wood. (The region is almost devoid of wood resources, but through necessity uses comparatively little wood.) Even investment in heavy industry, especially in hydroelectric development, included large expenditures not requiring imports—for example, much of the outlays for construction of dams, buildings and the like.

Finally, toward the end of the 1928-37 decade a growing proportion of the manufactured components entering into the investment programs were produced locally. Turbines, generators, textile machinery and the like continued, of course, to come from the Soviet industrial centers.

It is difficult to see how even as much as one-half of the investment rubles could have been spent on goods imported into the region. If half of the investment rubles were spent on imported goods and the average investment ruble was worth only half as much as a 1926-7 ruble, the total stated investment of about 6.5 billion rubles exaggerates by four times the actual 1926-7 value of investment goods imported into the region,

suggesting that the import of such goods was only about 1.6 billion 1926-7 rubles. The 1926-7 ruble value of investment goods imported into the region is accordingly placed in the range 1.5 to 3.0 billion 1926-7 rubles, and it is the judgment of the present writers that the true figure is probably in the lower part of this range.

Current supplies for the region's agriculture and industry, including fertilizers, gasoline, lubricants, machinery parts and replacements, wood, medical and educational supplies, and so on, are the next category of imports. Some of these items—wood, hospital equipment, school furniture, and others—have already been largely covered in the investment figure. Of the others the region's industry began to produce an increasing share during the decade. By 1937 the region was apparently about self-sufficient in gasoline and lubricants; it was producing large quantities of fertilizers; and many of the small metal fabrications and spare parts were being manufactured locally. The data are not sufficiently comprehensive to permit any precision in computing 1926-7 ruble value of total imports during the decade of industrial and agricultural supplies, but on all counts it seems quite unlikely that their value exceeded the value of imported investment goods; accordingly the import of such supplies is placed also in the 1.5 to 3.0 billion ruble range. The estimate of this category of imports is the weakest link in the present study.

The region remained deficit in grain, as it always has been when producing much cotton. During World War I and the subsequent revolution, transportation broke down, blocking cotton exports and grain imports; the Central Asian farmers abandoned cotton cultivation and shifted to food crops to save themselves from starvation. Grain cultivation in the region has been continued as a partial safeguard against the hazard of transportation breakdown. The amount of grain shipped into the region during the decade appears to have been on the order of 8.5 million (metric) tons, which at an approximate 1926-7 price of 61 rubles per ton would be valued at about 500 million rubles. The estimate of imports is based on a statement in a 1926 plan for the region that 650 pounds of grain per capita (including for cattle feed) would be a sufficient ration; on this basis and with allowance for the rise in population and the annual grain harvests of the region, total imports in the decade were estimated. The grain import for 1933, a mid-year of the decade, was in this fashion estimated at 986,000 tons. An actual import figure for the same year is available: 1,047,500 tons or 6 per cent more. This check increases considerably the credibility of the total estimate for grain.

RISE IN CONSUMER GOODS

As the region industrialized and urbanized, there was probably a considerable rise in imports of manufactured consumer goods. There is no way to estimate directly their probable amount or value in 1926-7 rubles. We fall back upon the logic of the preceding article, to which the findings here are pertinent. It is argued there that apparently the very large increase in the region's productivity was accomplished without cutting into living standards and (on the basis of the present study) with relatively moderate net assistance from the rest of Russia. Although statistical indications were cited suggesting an actual rise in living standards in the region between 1928 and 1937, the argument proceeds on the less presumptive basis that at least living standards did not decline. The increasing output of the region's consumer goods industries (especially textiles, shoes, sugar, printed matter) was beyond question sufficient to meet the increased demand for manufactured consumer goods stemming from the rise in the region's population. Hence it makes little difference to the *significance* of the Central Asia case whether the import of manufactured consumer goods became considerably larger after 1928 or whether there was no increase. For in the former case the conclusion about the region will read: a very large rise in productivity was attained with a large increase in consumer intake of manufactured goods and no change in consumer intake of other commodities, and with a moderate net assistance from the rest of Russia except in manufactured consumer goods. The general implications of this conclusion would be identical with those of the former conclusion. Unless, that is, one wished to argue that a considerable rise in living standards was an important cause, as incentive to labor, of the rise in the region's productivity; such an argument, however, would fit badly with the experience in the Soviet Union as a whole, where productivity increased quite rapidly but living standards increased very little if at all.

Still, it is necessary to add to the import column a sum of value equal to the 1928 rate of import of manufactured consumer goods multiplied by ten for the years of the decade. There is evidence that in 1925-6 the amount of such imports in 1925-6 prices was 130 million rubles. By 1928 the value of such imports in 1926-7 rubles would probably not have exceeded 200 million rubles, suggesting a figure for this category of 2 billion rubles.

Total exports and imports during the decade, estimated by these various strategems were, in billions of 1926-7 rubles:

Exports		*Imports*	
Cotton	4.6	Investment goods	1.5 to 3.0
Other	0.4 to 1.4	Supplies for agriculture and industry	1.5 to 3.0
Total	5.0 to 6.0	Manufactured consumer goods	2.0
		Grain	0.5
		Total	5.5 to 8.5

No one is more aware than the present writers of the inadequacy of the data underlying these estimates.

In the February 15 issue of FOREIGN POLICY REPORTS:

PROFILE OF RED CHINA *by A. Doak Barnett*